

Solid State Phase Control Material Combined with Nano-Beads Designed to Solitonize Ambient Solar Light for Direct Solar-to-Kinetic Energy Conversion in Spacecraft as Well as Here on Earth: A Revolutionary Propulsion Mechanism

5 September 2022

Simon Edwards

Research Acceleration Initiative

Introduction

In a somewhat related development, a short time ago, a fascinating new phenomenon was observed at the University of Vienna (<https://www.sciencedaily.com/releases/2022/08/220826113335.htm>) in which glass nanoparticles were levitated with polarized laser light and one particle was made to repel the other with the repulsion being non-mutual.

Abstract

I now believe that this was made possible by a lensing effect that, under finely controlled conditions, allows a wave of light to dance around the periphery of a glass bead the diameter of which matches light's phase height and for the lensing effect to be, in effect, solitonizing.

I propose that the recoilless solitonization of light emanating from one nanoparticle resulted, in that experiment, in organized walls of light (in this case) known as solitons striking the other. Because of that same lensing effect, light that is already solitonized striking that second bead of glass, the one being repelled, would be lensed inward and would be internalized by that bead rather than it bending around. This is the reason for the experimental result in Vienna.

Electrostatic repulsion is at the heart of ionic propulsion technology already in use. Within this would-be mysterious phenomenon is a clue, however, as to how we could design a new type of solar sail that relies not upon capturing solar wind, but rather, generating solitonized light pulses by using a solid state polarization mechanism to direct polarized solar light toward a great many spherical beads with crystalline properties in which the beads convert light into a great many low-strength, small-scale soliton waves capable of exerting direct, recoilless, magnetic (as opposed to electrostatic) repulsion in a single direction.

In the Vienna experiment, although the effect being witnessed was classical electrostatic repulsion, its mode of achieving that repulsion involved solitonization. Even though the electrostatic element of that experiment was not groundbreaking, the fact that recoilless emission of a force carrier in one direction was achieved is revolutionary and is a proof of something I have believed possible for some time. If magnetism can be emitted recoillessly, electromagnetic energy can be efficiently converted into kinetic force directly without any of the traditional go-between steps we have had to utilize historically.

Imagine a spacecraft bound for deep space where the craft is propelled by Solar light and must keep a dome-shaped shield to its rear to achieve propulsion. Its outermost layer would convert light of varying polarity into light of a single polarity. The next layer down, trillions of glass beads configured to sit directly behind each of trillions of eENZ solid state polarity actuators cause individual waves of light to cluster together into nano-solitons with a strong magnetic property that moves exclusively in the direction of angular momentum of light. Beneath this layer is a metal plate that is pushed by the magnetism of these waves and ultimately moves the whole spacecraft along.

With such an absolutely efficient system for converting light into kinetic energy, far more efficient than ionic propulsion, a kinetic energy impactor or space probe could be accelerated by, with an eENZ/NS/Photo-Magnetic propulsion drive just eight feet in diameter by about an additional 518,000 MPH for each 24 hours of flight time between launch and the time of impact.

Thus, not only do solitons have the power to drive NEO deflection in and of themselves (as described in my recent publication on that topic) they have the capacity to drive kinetic energy impactor-based approaches. It cannot be emphasized enough, however, that a kinetic impactor moving at 5% of the speed of light, while impressive, is useless without accurate guidance systems capable of assuring that the target is struck successfully.

For full maneuverability, we must have a dome that goes around essentially the entire rear half of the craft and add to the mechanism a specialized light redirection mechanism that allows light to be channeled selectively toward different parts of the dome to allow for course corrections. This approach may ultimately lead to a capability for return flight to the inner solar system for manned spacecraft. Light can enter from any direction and can be channeled using mirrors so as to enter that eENZ (phase control) material from the desired direction of angular momentum.

In and of itself, light carries with it little momentum in its natural form. By learning to convert light directly into kinetic energy, we can take NEO deflection and space exploration to the next level. Furthermore, there is no reason these same principles couldn't be applied to the propulsion of aircraft, boats, or automobiles. On Earth, we have to contend with friction and gravity and thus the effect would be more modest, but would still be enormously powerful.

Conclusion

eENZ/Nano-Soliton/Photo-Magnetic Propulsion conversion is a mechanism for directly converting solar energy into physical force without the need for any electric motor or battery. Any nation that can maintain exclusive control of this technology would enjoy a significant strategic and economic advantage for decades to come.